

Engineering and Prefabrication

Saving time with engineering and offsite prefabrication

Hyperscale Data Center Dublin



Energy efficiency



Time to market



Sustainability



Reliability



Plastic pipes for cooling meet ultra-stringent quality requirements for hyperscale data center

At a new hyperscale data center under construction in Ireland, the ecoFIT PE-100 (polyethylene) system from GF Piping Systems has been chosen for the process cooling water. The use of this system combined with off-site fabrication has allowed on-site installation time, for the process water, to be reduced remarkably from 6 months to 6 weeks.

GF Piping Systems' ecoFIT high-density polyethylene (PE-100) piping systems and valves, ranging in outside diameter from 63mm (2") – 250mm (10"), were selected for the mission-critical process cooling water system components deployed on the roof of the data center buildings, as well as for the condensate drainage and double-walled rainwater drainage systems.

GF ecoFIT components are ideal for use on rooftops thanks to their complete weathering and UV resistance as well as their low weight. Approximately 8 kilometers of piping were required per building, providing cooling for systems with a combined power capacity of 70 MW in phases 5 and 6, and encompassing two buildings, each with a floor area of 25,500 square meters. (Phases 1 to 3 totaled 96 MW of power capacity).

GF, as the piping system provider, leveraged its in-house expertise in data centers to provide a range of engineering services to support the design and installation process, including stress analysis, static load calculations, re-design of piping isometrics, piping expansion/contraction analysis, and recommendations for the design of pipe supports. These services helped add crucial value to the project by enabling the piping system design to be verified and adapted where necessary.

The supplier also provided non-destructive testing (NDT) services based on state-of-the-art ultrasonic examination technology, allowing plastic piping welds in critical locations to be scanned before pressure testing to ensure safe and error free commissioning. To ensure safe and reliable on-site workmanship, GF, as manufacturer, trained and certified all installers in the installation and jointing of GF ecoFIT components, thereby helping to reduce costly on-site errors to a minimum. Thanks to its global footprint of sales companies, GF can also offer GF plastic experts to visit sites on a regular basis, to ensure ongoing top-quality workmanship.

Off-site fabrication allowed piping system modules to be pre-assembled in a controlled environment, thereby helping to meet quality assurance requirements, and reducing time on-site. Trace heating, insulation and cladding are all fitted to the piping system off-site too, ensuring fast and efficient installation of the pipework when the modules are taken on-site. The supplier's quality control specialists were involved throughout the off-site prefabrication process.

The Senior MEP (Mechanical, Electrical & Plumbing) Package Manager for the project added: "We would like to take an opportunity to acknowledge, celebrate and say thanks for the big wins on the project. I think it is fair to say that the pipework modules on the roof are one of the biggest successes on the project campus to date. Having witnessed the construction of the process water system from phase 1 through to 3 (which is significantly smaller compared to phase 5) and compared it to what has happened in the last 6 weeks, it has been astounding to see. We have accomplished in 6 weeks what has taken 6 months on previous phases. This is an amazing achievement!"

It is clear from these details that off-site pre-fabrication of piping modules is a "win-win", bringing benefits for installer, customer and project end-user alike.



Prefabricated pipe modules ready to be shipped to the construction site.



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- **Project : Data Center Dublin**
- **Client : Undisclosed**
- **Mechanical Contractor : Dornan Engineering Limited**
- **Application : Data Center Process Cooling Water**
- **Product : GF ecoFIT HDPE Piping System**
- **Combined Power Capacity : 70MW**